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(71) Applicant(s)
Keiper Recaro GmbH & Co

(Incorporated in the Federal Republic of Germany)

Büchelstr 54-58, 5630 Remscheid,
Federal Republic of Germany

(72) Inventor(s)
Klaus Dieter Bertram
Johann L Martens

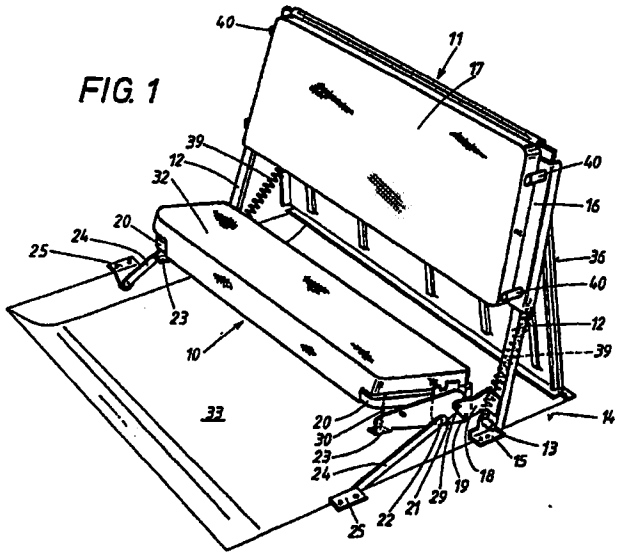
(74) Agent and/or Address for Service
D Young & Co
21 New Fetter Lane, LONDON, EC4A 1DA,
United Kingdom

(54) Temporary seat for a vehicle

(57) A temporary seat has a seat portion (10) and a backrest (11) which in a condition of non-use are folded onto a vehicle floor (14) to form a flat load surface. The backrest (11) and the seat portion (10) are pivotably mounted to the floor (14) and are locked in inherently stable relationship with each other - but releasably - in a condition of use by means of a locking device. The locking device effects automatic pivotal movement also of the seat portion (10) upon pivotal movement of the backrest and effects simple locking and release of the condition of use of the temporary seat.

The backrest (11) has a backrest plate (16) which is arranged between pivot bars (12) and is disposed at a spacing from pivot axes (13) of the pivot bars (12), which spacing corresponds at least to the depth of the seat portion (10). The seat portion (10) on the one hand is pivotably (19) arranged at each side on a mounting plate (18) which is fixed to a lower region of the respective pivot bar (12), and on the other hand is hingedly connected on both sides to the vehicle floor (14) by way of a coupling bar (24), each mounting plate (18) being lockable to the seat portion (10) in the condition of use by means of a locking lever (23) which is biassed in a locking direction by a spring (30).

FIG. 1



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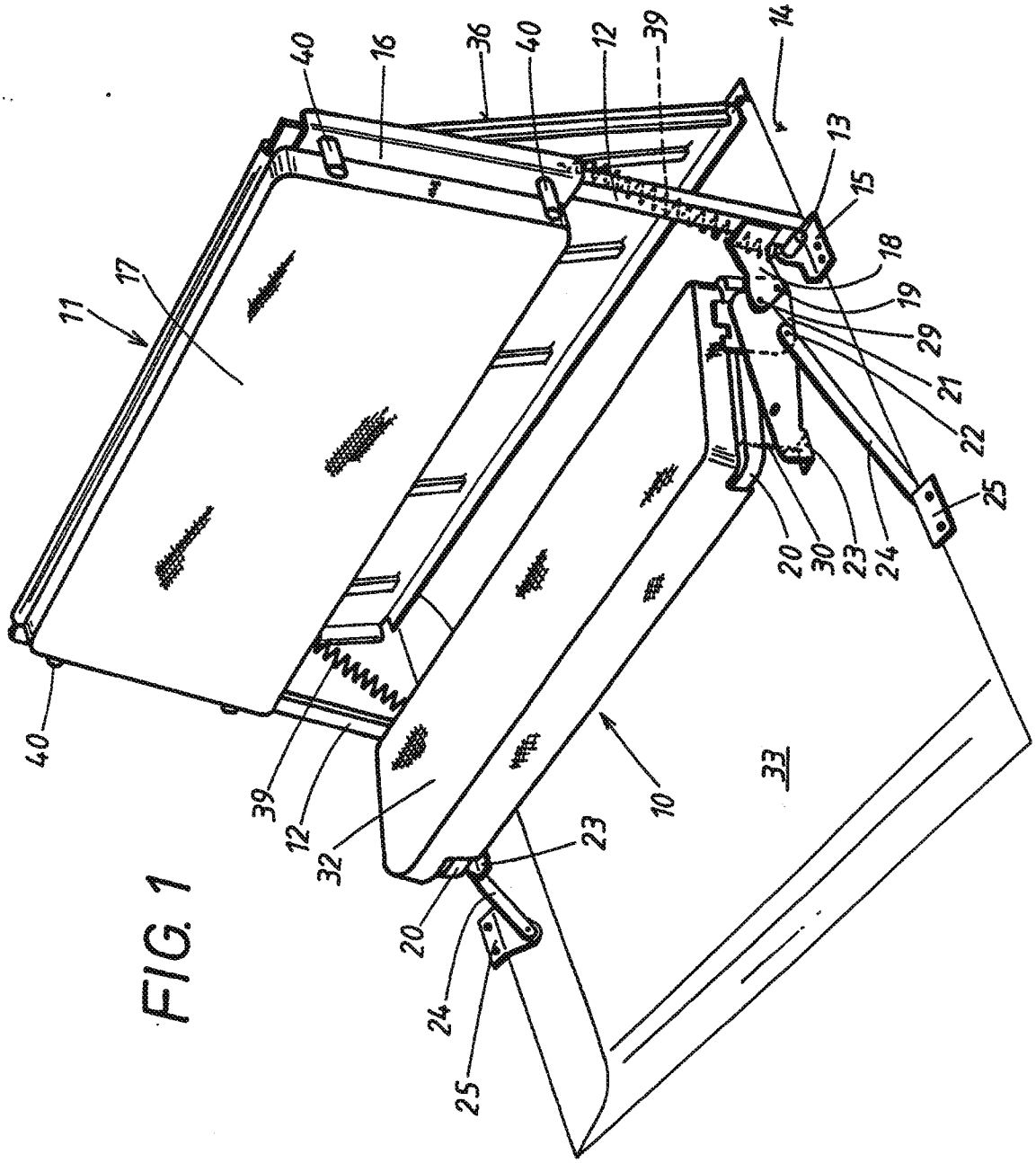
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FIG. 1

FIG. 2

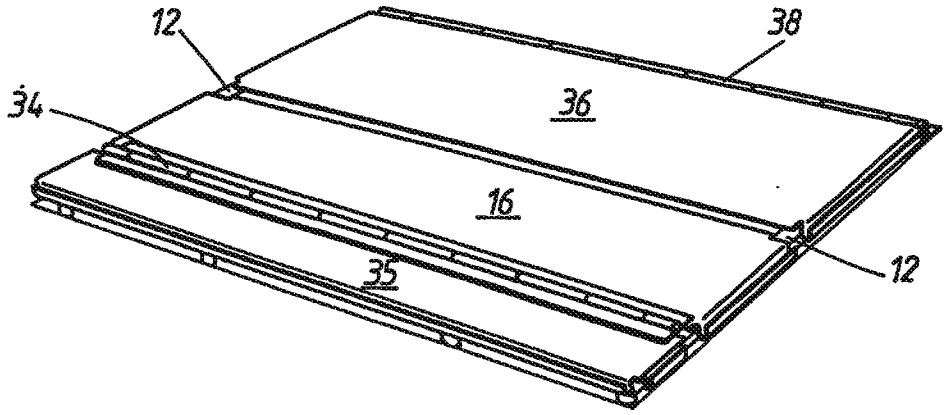
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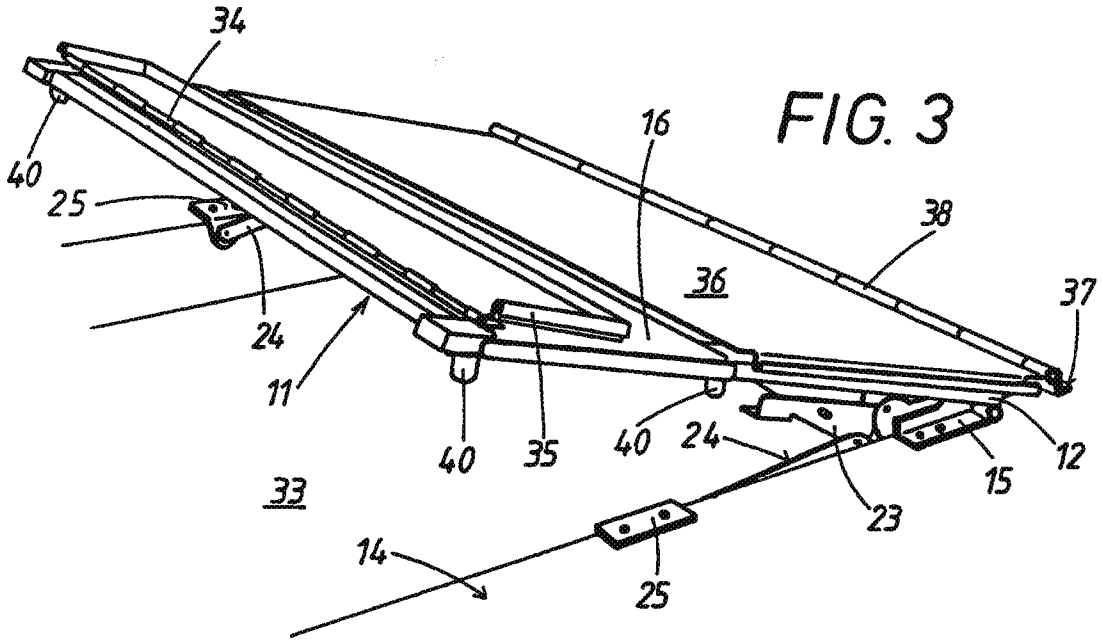
FIG. 3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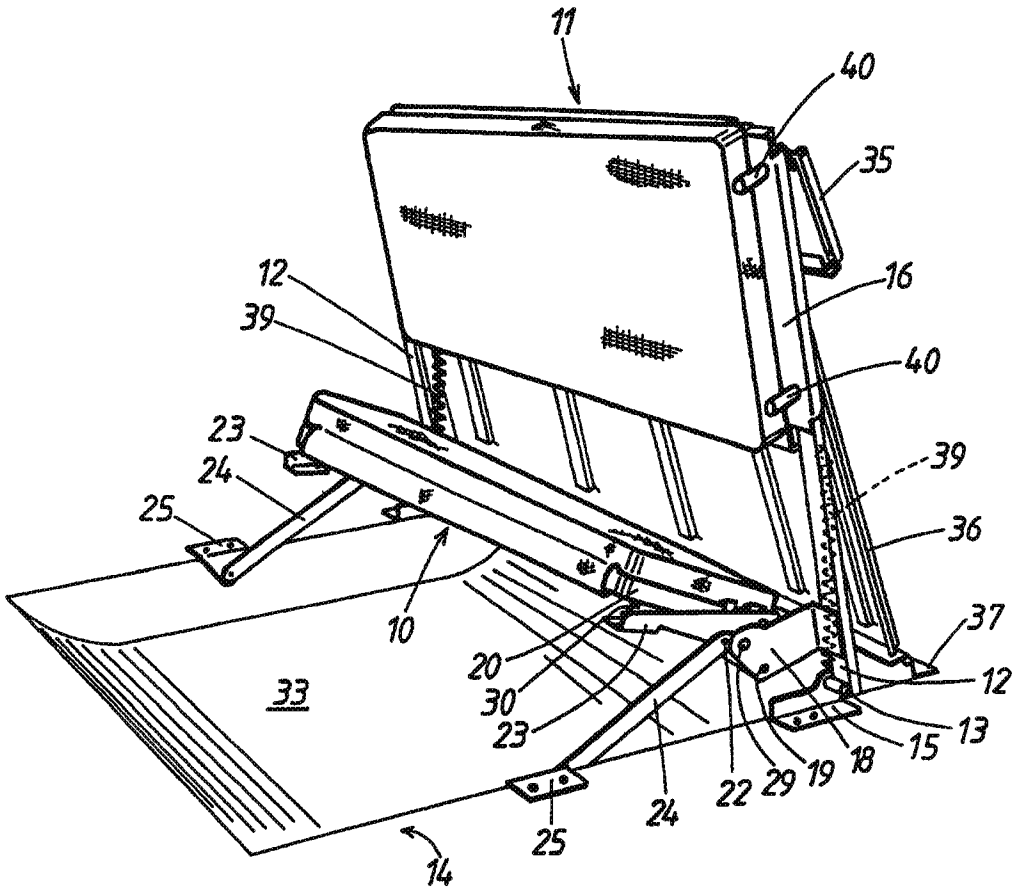
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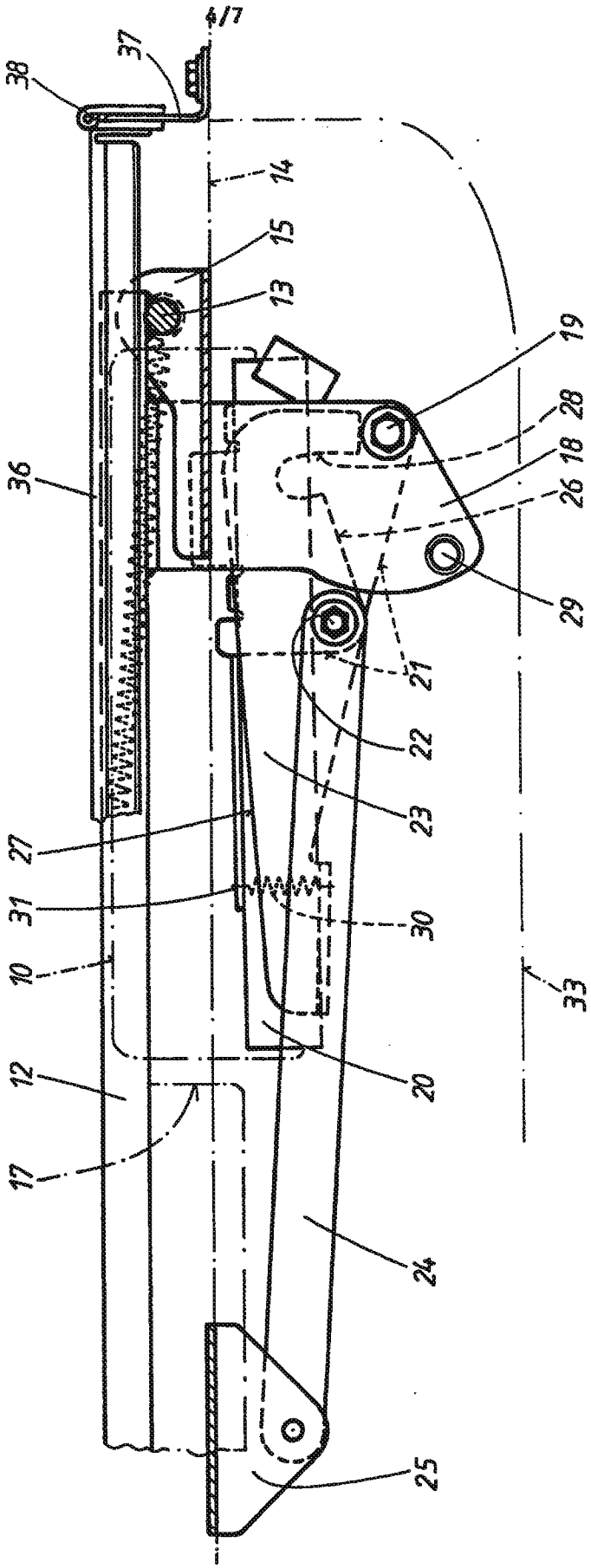
FIG. 4

FIG. 5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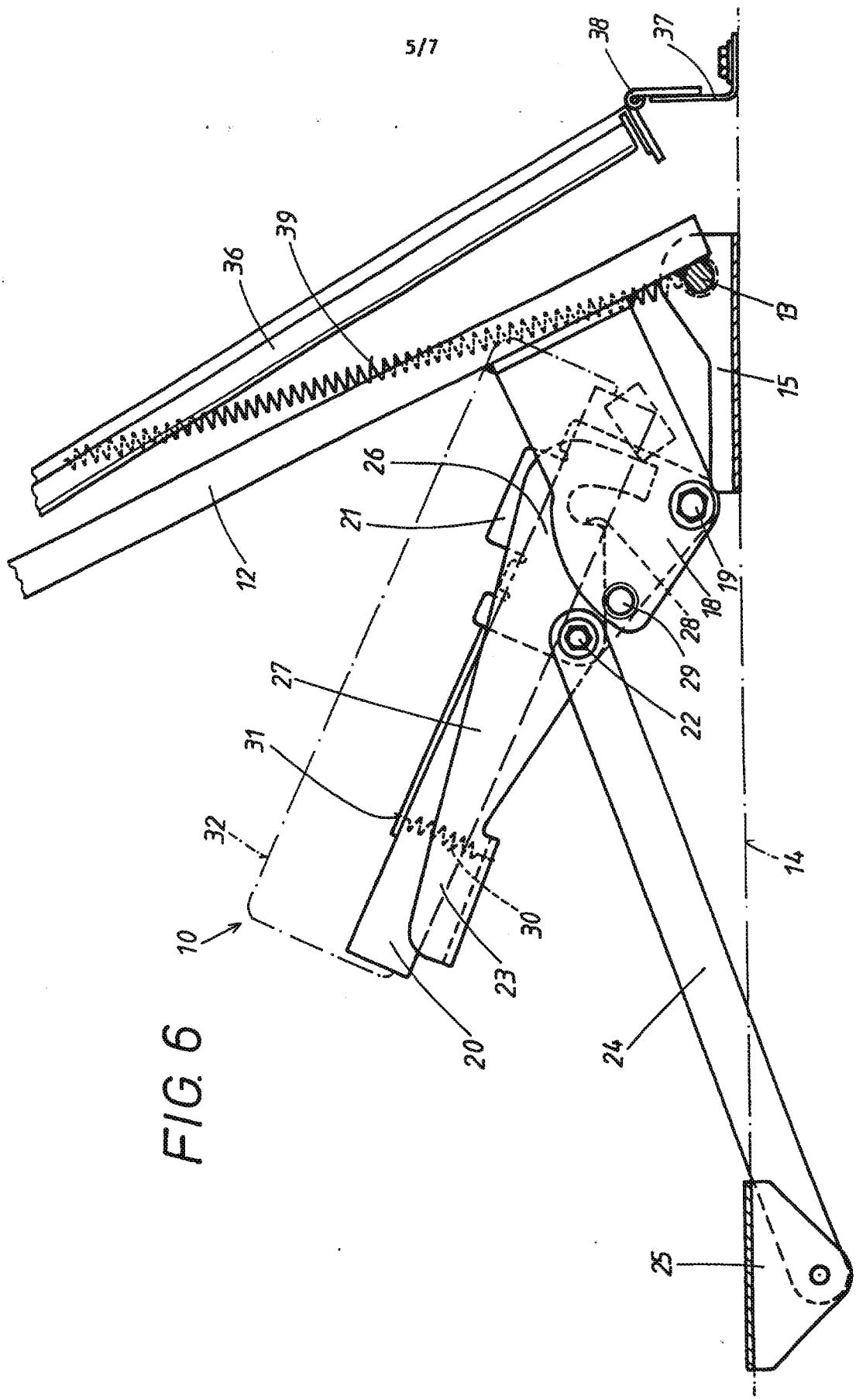

FIG 6

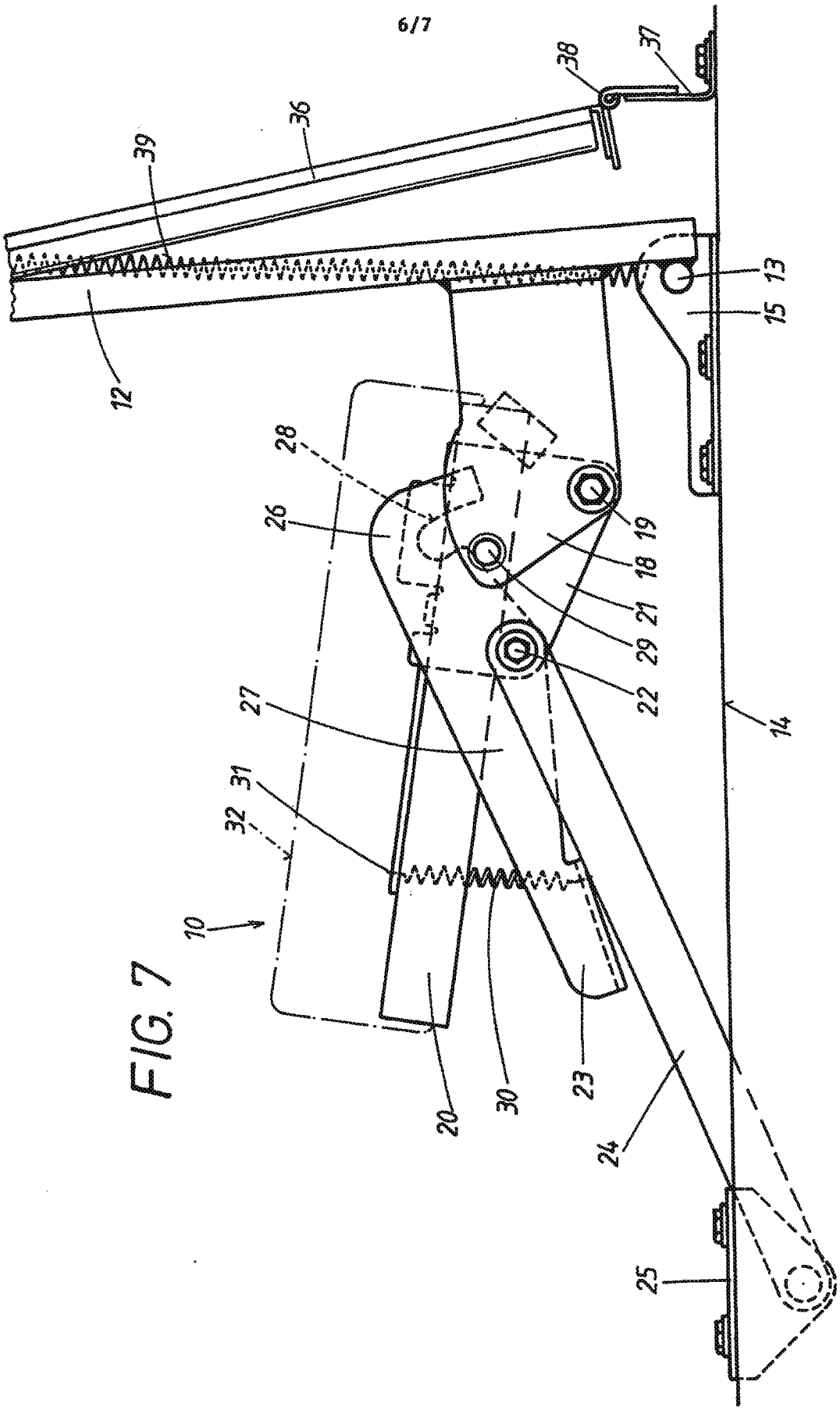

FIG. 7

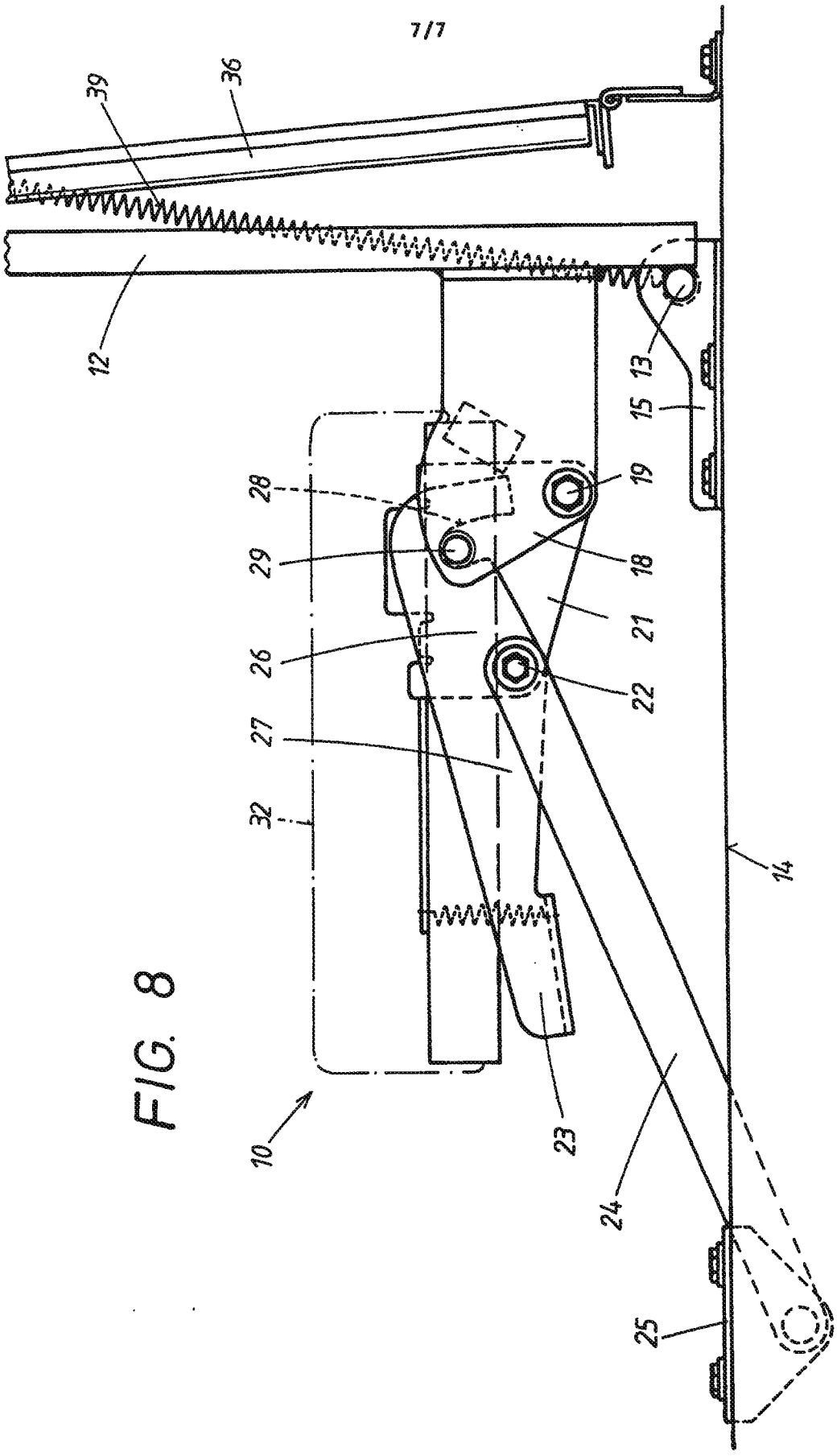

FIG. 8

TEMPORARY SEAT FOR A VEHICLE

The invention relates to a temporary seat for a vehicle.

In a previously proposed temporary seat, both a backrest and also a seat portion were mounted pivotably to a vehicle floor, more specifically in such a way that, in the condition of non-use, both the backrest and the seat portion formed with their rear sides a load surface which covered over a depression in the floor. To move the temporary seat into the condition of use, firstly the backrest was pivoted upwardly into a position in which it was inclined slightly rearwardly out of the perpendicular and fixed in that position, whereupon the seat portion was then pivoted through about 180° into a horizontal position and in so moving reached the position which was previously occupied by the backrest when the backrest was in its condition of non-use. With this construction the backrest and the seat portion each represent components which are separate from each other and which cannot be combined to form an assembly unit. In addition handling of the temporary seat for moving it into the condition of use and also into the condition of non-use is complicated and time-consuming.

According to the invention there is provided a temporary seat for a vehicle comprising a seat portion and a backrest which, in a condition of non-use, can be folded onto a floor of the vehicle to form a flat load surface, in which the backrest and the seat portion are pivotable and can be releasably locked in a condition of use in inherently stable relationship with each other by means of a locking device, the backrest has a backrest plate which is arranged between pivot bars and is disposed at a spacing from pivot axes of the pivot bars, which spacing corresponds at least to the depth of the seat portion, and the seat portion is pivotably mounted on each side to a respective mounting plate which is fixed to a lower region of the respective pivot bar, and is hingedly connected at each side to the vehicle floor by way of a respective coupling bar, each mounting plate being lockable to the seat portion in the condition of use by means of a locking lever which is biassed in a locking direction.

In such a temporary seat, by pivotal movement of the backrest, the seat portion will also automatically be moved into the desired

position (condition of non-use or condition of use respectively). In the condition of use of the temporary seat it can be locked and released in simple fashion. Such a temporary seat can be produced in the form of a structural unit which is suitable for storage in its entirety and which can also be mounted to the vehicle floor in its entirety.

To form the locking device to give a rigid connection between the backrest and the seat portion in the condition of use, the mounting plates which are fixed to the pivot bars of the backrest advantageously comprise, in addition to a pivot pin which pivotably supports the seat portion, a locking pin member which in the condition of use of the temporary seat engages in a slot which is open at one end, in the locking lever which is pivoted on the seat portion. With that arrangement, the component expenditure for supporting the temporary seat in its condition of use can be reduced by the coupling bar and the locking lever being mounted on a common pivot spindle which is fixed to the seat portion.

In order to be able to position the seat portion at an adequate height and to simplify production of the seat portion, disposed on the frame of the seat portion at each of the longitudinal sides thereof in a rear region of said sides is a respective carrier plate which accommodates both the pivot pin which respectively also forms the pivot axis of the seat portion and which connects the seat portion to the mounting plate of the backrest, and also the pivot spindle which pivotably mounts the coupling bar and which pivotably accommodates the locking lever. The biassing in the locking direction of the locking lever is advantageously produced by a tension spring which engages a force arm of the locking lever and in opposition to the direction of action of which the locking lever can be moved into its release position.

So that on the one hand a flat load surface can be formed in the condition of non-use of the temporary seat and on the other hand the temporary seat can be kept free from damage in the condition of non-use thereof, the rear side of the backrest, when the temporary seat is in the condition of non-use, preferably forms a load surface portion which is supplemented by a bridge portion pivotably connected to the top side of the backrest, while adjoining the underside of the backrest plate is

a cover plate associated with the vehicle floor pivotably behind the backrest. The cover plate covers over the seat portion when the temporary seat is in the condition of non-use. In order to secure the position of the cover plate when the temporary seat is in the condition of non-use, the cover plate is advantageously connected to a tension spring which is arranged on at least one longitudinal side of the seat and which is mounted at one of its ends to the pivot axis of the backrest and at the other of its ends engages the free edge region of the cover plate.

The invention is diagrammatically illustrated by way of example in the accompanying drawings in which:

Figure 1 is a perspective view of a temporary seat according to the invention in a condition of use;

Figure 2 is also a perspective view of the temporary seat in a condition of non-use and forming a load surface;

Figure 3 is a perspective view of the temporary seat in an intermediate condition at the beginning of an upward pivoting movement;

Figure 4 shows the temporary seat during pivotal movement into its condition of use, just before reaching its condition of use;

Figure 5 is a side view of a support and locking arrangement of the temporary seat in the condition of non-use thereof;

Figure 6 shows the support and locking arrangement of Figure 5 in a momentary intermediate condition during transfer of the temporary seat into its condition of use;

Figure 7 shows the support and locking arrangement of Figures 5 and 6 in an intermediate condition just before reaching its condition of use; and

Figure 8 shows the support and locking arrangement of Figures 5 and 7 in its position corresponding to the condition of use of the temporary seat.

A temporary seat comprises a seat portion 10 and a backrest 11 which is connected thereto. The backrest 11 has two pivot bars 12 which are hingedly supported about pivot axes 13 each on a respective mounting bracket 15 which are fixed to a vehicle floor 14. The free ends of the pivot bars 12 are connected together by a backrest plate 16 on which there is upholstery 17.

In the lower region a respective mounting plate 18, which faces

towards the upholstered side of the backrest 11, is fixed to each pivot bar 12. At its free end which is the lower end in the condition of use, each mounting plate 18 has a pivot pin 19 which is mounted in a carrier plate 21 fixed to a frame 20 of the seat portion 10 which also has upholstery 32. Each carrier plate 21 also has a pivot spindle 22 which is disposed in front of the respective pivot pin 19 (i.e. towards the front side of the seat portion 10) on each longitudinal side of the seat.

A locking lever 23 is mounted on the pivot spindle 22 about an intermediate position in its length so as to form a two arm lever, on each longitudinal side of the seat. Rotatably supported on each pivot spindle 22 is one end of a respective coupling bar 24, the other end of which is pivotably connected to a further mounting bracket 25 which is turn is fixedly connected to the vehicle floor 14. The pivot spindles 22 which are held on both longitudinal sides of the seat in the support plates 21 of the seat frame 20 are connected together for rotational movement by a transmission bar (not shown) so that, when the locking lever 23 on one longitudinal side of the seat is pivoted to actuate it, the locking lever 23 on the opposite longitudinal side of the seat is also pivoted. It will be appreciated in that respect that the locking levers 23 are secured against rotation in its respect to the pivot spindles 22. A load arm 26 of each locking lever 23 has a slot 28 which is open towards the underside and which in the condition of use of the temporary seat engages over a respective locking pin member 29 fixed to the respective mounting plate 18. A force arm 27 of the locking lever 23 is engaged by one end of a tension spring 30, the other end of the spring 30 being fixed to an anchorage 31 on the seat portion frame 20 so that locking lever 23 is biassed to the locking position shown in Figure 8.

When the temporary seat is folded down in the condition of non-use into a depression 33 in the vehicle floor 14, the rear side of the backrest plate 16 forms a load surface portion which covers over the depression 33 in the vehicle floor in a region-wise manner. That load surface portion is prolonged by a bridge portion 35 which is secured to the top side on the rear of the backrest plate 16 of the backrest 11, for example by a piano hinge 34, and which covers an end region of the depression 33. The seat portion 10 which in the condition of non-use

is pivoted into a region between the exposed pivot bars 12 is engaged over by a cover plate 36 which lies with its free edge on the lower edge region of the rear side of the backrest plate 16 and which is pivotably fixed behind the backrest 11 to the vehicle floor 14 at the edge of the depression 33. For that purpose disposed on the vehicle floor 14 is an angle bar 37 to which the cover plate 36 is hingedly connected by way for example of a further piano hinge 38. In order to secure the folded-down position of the cover plate when the temporary seat is in the condition of non-use, in the illustrated embodiment, a respective tension spring 39 is connected at each of the two longitudinal sides of the seat to the pivot axis 13 of the pivot bar 12 of the backrest 11, the other end of the spring being connected to the free edge region of the cover plate 36.

Disposed laterally of the upholstery 17 of the backrest 11 on the backrest plate 16 in each of respective corner regions thereof is a respective buffer element 40, which buffer elements 40 bear against the vehicle floor 14 when the temporary seat is in the condition of non-use.

If now the temporary seat is to be moved into the condition of use from the folded-down position of the seat in its condition of non-use, as is shown in Figure 2 and in which it forms a load surface, then firstly the bridge portion 35 is pivoted to lie on the rear side of the backrest plate 16 and thereafter the backrest 11 is pivoted into the end position shown in Figure 1, by way of the intermediate positions shown in Figures 3 and 4. As that happens, the cover plate 36 automatically pivots into the position shown in Figure 1, in which the tension springs 39 are stressed beyond the stressing which caused the cover plate 36 to be held closed in the condition of non-use. During that pivotal movement of the backrest 11 the seat portion 10 is also moved into the position shown in Figure 1, by the seat portion pivoting about the pivot pins 19 which are mounted in the mounting plates 18 on both longitudinal sides of the seat, as the coupling bars 24 which are mounted to the mounting brackets 25 exert a pulling force on the seat portion 10 of the seat by way of the pivot spindles 22 which are mounted in the carrier plates 21 of the frame 20, when the backrest 11 is pivoted rearwardly together with the mounting plates 18, whereby the seat portion 10 finally passes into the position shown in Figure 1.

When that happens the seat portion passes through the practically instantaneous conditions shown in Figures 6 to 8. The end of the pivotal movement is shown in Figure 8, in which respect the locking lever 23 which slides on the locking pin member 29 during the pivotal movement ultimately moves into the position shown in Figure 8 as a result of being acted upon by the tension spring 30 on both longitudinal sides of the seat, by virtue of the slot 28 in the load arm 26 of the locking lever 23 engaging over the locking pin member 29 which is fixed to the mounting plate 18. In that position the pivot pin 19, the pivot spindle 22 and the locking pin member 29 form a rigid joint so that the entire temporary seat is supported on the mounting brackets 15 and 25 by way of the coupling bars 24, the mounting plates 18 and the pivot bars 12.

For the purposes of moving the unfolded temporary seat shown in Figure 1 into the condition of non-use thereof, one of the two locking levers 23 is pressed manually downwardly, that is to say in the anti-clockwise direction as viewed in the drawings, against the force of the tension spring 30 connected to its force arm 27, so that the slot 28 of the locking lever 23 is freed from the respective locking pin member 29. Then, the seat can be moved into the folded-down position shown in Figure 2 by applying a force to the backrest in a direction to cause it to move over the seat portion 10.

CLAIMS

1. A temporary seat for a vehicle comprising a seat portion and a backrest which, in a condition of non-use, can be folded onto a floor of the vehicle to form a flat load surface, in which the backrest and the seat portion are pivotable and can be releasably locked in a condition of use in inherently stable relationship with each other by means of a locking device, the backrest has a backrest plate which is arranged between pivot bars and is disposed at a spacing from pivot axes of the pivot bars, which spacing corresponds at least to the depth of the seat portion, and the seat portion is pivotably mounted on each side to a respective mounting plate which is fixed to a lower region of the respective pivot bar, and is hingedly connected at each side to the vehicle floor by way of a respective coupling bar, each mounting plate being lockable to the seat portion in the condition of use by means of a locking lever which is biassed in a locking direction.

2. A temporary seat according to claim 1, in which each mounting plate in addition to a pivot pin which pivotably supports the seat portion, has a locking pin member which in the condition of use of the temporary seat engages a slot which is open at one end, in the respective locking lever, which locking lever is pivoted on the seat portion.

3. A temporary seat according to claim 1 or claim 2, in which each coupling bar and the respective locking lever are mounted on a common pivot spindle which is fixed to the seat portion.

4. A temporary seat according to claim 3, which disposed on a frame of the seat portion at each of the longitudinal sides thereof in a rear region of said sides is a respective carrier plate which accommodates both the pivot pin which respectively also forms the pivot axis of the seat portion and which connects the seat portion to the mounting plate of the backrest, and also the pivot spindle which pivotably mounts the coupling bar and which pivotably accommodates the locking lever.

5. A temporary seat according to any one of the preceding claims, in

which the biassing in the locking direction of the locking lever is produced by a tension spring which engages a force arm of the locking lever.

6. A temporary seat according to any one of the preceding claims, in which the rear side of the backrest, when the temporary seat is in the condition of non-use, forms a load surface portion which is supplemented by a bridge portion pivotably connected to the top side of the backrest, while adjoining the underside of the backrest plate is a cover plate associated with the vehicle floor pivotably behind the backrest.

7. A temporary seat according to claim 6, in which the cover plate is connected to a tension spring which is arranged on at least one longitudinal side of the seat and which is mounted at one of its ends to the pivot axis of the backrest and at the other of its ends engages the free edge region of the cover plate.

8. A temporary seat for a vehicle substantially as hereinbefore described and illustrated with reference to the accompanying drawings.

Patents Act 1977 Examiner's report to the Comptroller under Section 17 (The Search report)	Application number GB 9314476.4
Relevant Technical Fields (i) UK Cl (Ed.L) A4L (LBPB LBPE); A4J (ii) Int Cl (Ed.5) B60N	Search Examiner R E SHOEFIELD Date of completion of Search 20 OCTOBER 1993
Databases (see below) (i) UK Patent Office collections of GB, EP, WO and US patent specifications. (ii)	Documents considered relevant following a search in respect of Claims :- 1-8

Categories of documents

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Category	Identity of document and relevant passages	Relevant to claim(s)
A	EP 0151426 A1 (FIAT AUTO)	
A	EP 0030924 A1 (S.I.R.P)	

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